Manure Happens! Distribution of Delmarva's Poultry Litter
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Introduction
- Efficient utilization of nutrient-rich poultry litter (manure) is challenging due to issues associated with its distribution.
- The poultry industry has various moving parts, where multiple groups constantly interact with one another; the poultry growers, manure brokers, and crop growers.
- The objective of this study is to understand the individuals who raise poultry, how many flocks per year, how often they clean out the litter from the houses, and where it goes afterward.
- Litter is high in Phosphorus and in historically poultry producing areas the soils is rich with P, when excessive poultry litter is applied it increases the chance of runoff which could negatively impact local water quality.

Methods
- Designing a survey for Delmarva poultry growers to learn more about the supply of litter in the region; pretesting with small groups, and getting feedback from people and organizations within the poultry industry.
- Preparing documents for IRB approval.
- Compiled a complete contact list of poultry growers around Delmarva.

Expected Results
- We expect that approximately 20% of poultry growers will complete the survey.
- From this data, we plan to analyze how much litter is removed from each house, how often, and where it goes after it is removed.

Example Survey Questions
- By understanding the relationship between how often a farmer uses litter management practices and how many flocks they have per year, we can calculate the average amount of litter produced.

<table>
<thead>
<tr>
<th>Current litter management practices frequencies</th>
<th>How often do you conduct this practice?</th>
<th>Approximately how much manure is removed per house for this practice?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial clean-out</td>
<td></td>
<td></td>
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<tr>
<td>Window</td>
<td></td>
<td></td>
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<tr>
<td>Pulverize</td>
<td></td>
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</tr>
</tbody>
</table>

Considering only partial clean-outs, how much poultry litter do you remove from all of your houses over an entire year, on average?
Note: Do not include total clean outs in this calculation.

Tons per year

Next Steps
- A survey for crop growers is also being implemented to learn about the demand for poultry litter as a nutrient source. The survey is being distributed by the National Agricultural Statistics Service (NASS).
- Analysis of data from both surveys will begin in June 2020.
- Results of these surveys will inform the development of a market platform to connect the people who have litter to the people who want it.

References and Acknowledgements
- Delmarva Poultry Industry, Inc., “All About Delmarva’s Chicken Industry”
- Stephen Wemple and Laura Taylor for pretesting the initial survey countless times.

Figure 1: Depiction of the movement of poultry litter in the region (Source: Bass et al., 2018)

Figure 2: Sample question from survey showing frequencies of litter management practices

Figure 3: Sample question from survey; this is an important questions as it shows where the poultry litter is being transported to

Figure 4: Photo of the inside of a chicken house (Source: Delmarva Poultry Industry)

Figure 5: Outside of a chicken house (Source: Delmarva Poultry Industry)

Figure 6: Storage of poultry litter (Source: Delmarva Poultry Industry)